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CECRA Site Update
Comprehensive Environmental Cleanup and Responsibility Act
November, 1993

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Bitterroot Valley Sanitary Landfill CECR
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Introduction

An interim cleanup is underway at the former Bitterroot Valley Sanitary Landfill (BVSL), located approximately one mile south of Victor, MT. This cleanup, called an Interim Remedial Action, is one part of an ongoing voluntary effort by the National Institutes of Health (NIH) to investigate and clean up groundwater and subsurface soil contamination problems associated with the disposal of chloroform and other volatile organic chemicals at the landfill by Rocky Mountain Laboratory, a subsidiary of NIH, and Ribi ImmunoChem Research, Inc. The chemicals were reportedly disposed of during the early 1980s in a waste disposal pit located at the southwestern portion of the landfill. NIH is coordinating this voluntary interim action with the Montana Department of Health and Environmental Sciences (MDHES) CECRA Program. This update details the current Interim Remedial Action and summarizes future actions to address contamination problems at the landfill site.

INTERIM REMEDIAL ACTIONS

FIELD INVESTIGATION -- Spring and Summer, 1993

During the spring and summer of 1993, Huntingdon Chen-Northern Inc. (Chen-Northern), a consultant to NIH, conducted an investigation to determine if a specific source area for groundwater contamination within and downgradient of the landfill could be identified. The investigation included drilling 35 borings and obtaining groundwater and soil samples for field and laboratory testing.

Based on the results of the field investigation, Chen-Northern concluded the following:

- An isolated source area, which probably coincides with the location of the historic waste disposal area, was identified in the southwest portion of the landfill.
- Contaminated soil above and at the water table near the historic waste disposal pit continues to impact groundwater quality at the landfill and in an area east of the landfill.
- Approximately 900 to 3,000 cubic yards of soil are contaminated by chloroform in the area of the historic waste disposal pit.
- The average thickness of the contaminated soil is about 5 feet. This contaminated soil layer is at a depth of approximately 35 to 50 feet. Uncontaminated soil overlies the contaminated zone.

PROJECT DESIGN

After reviewing the results of the field investigation, NIH proposed a source removal action to reduce groundwater contamination. MDHES reviewed the plans for this interim action. Chen-Northern engineers under contract to NIH through Wallace Roberts and Associates of Missoula prepared plans and specifications for the removal action. NIH solicited bids from qualified contractors. In September 1993, NIH selected Olympus Environmental to perform the work. The soil removal work began on October 11, 1993. The second part of the cleanup action involving groundwater pumping and treatment is scheduled to begin in the spring of 1994.

Cleanup involves removal and treatment of contaminated soil and groundwater in the historic waste disposal pit area. These activities will take place in the portion of the landfill where the chemicals were disposed of and where studies have shown the worst contamination exists. The objective of this early cleanup effort is to remove the source of contamination while other studies by NIH and MDHES continue. These studies will allow MDHES to decide the comprehensive remedy for the entire site, including downgradient contaminated groundwater. The adequacy of these interim actions will be evaluated as part of these studies.

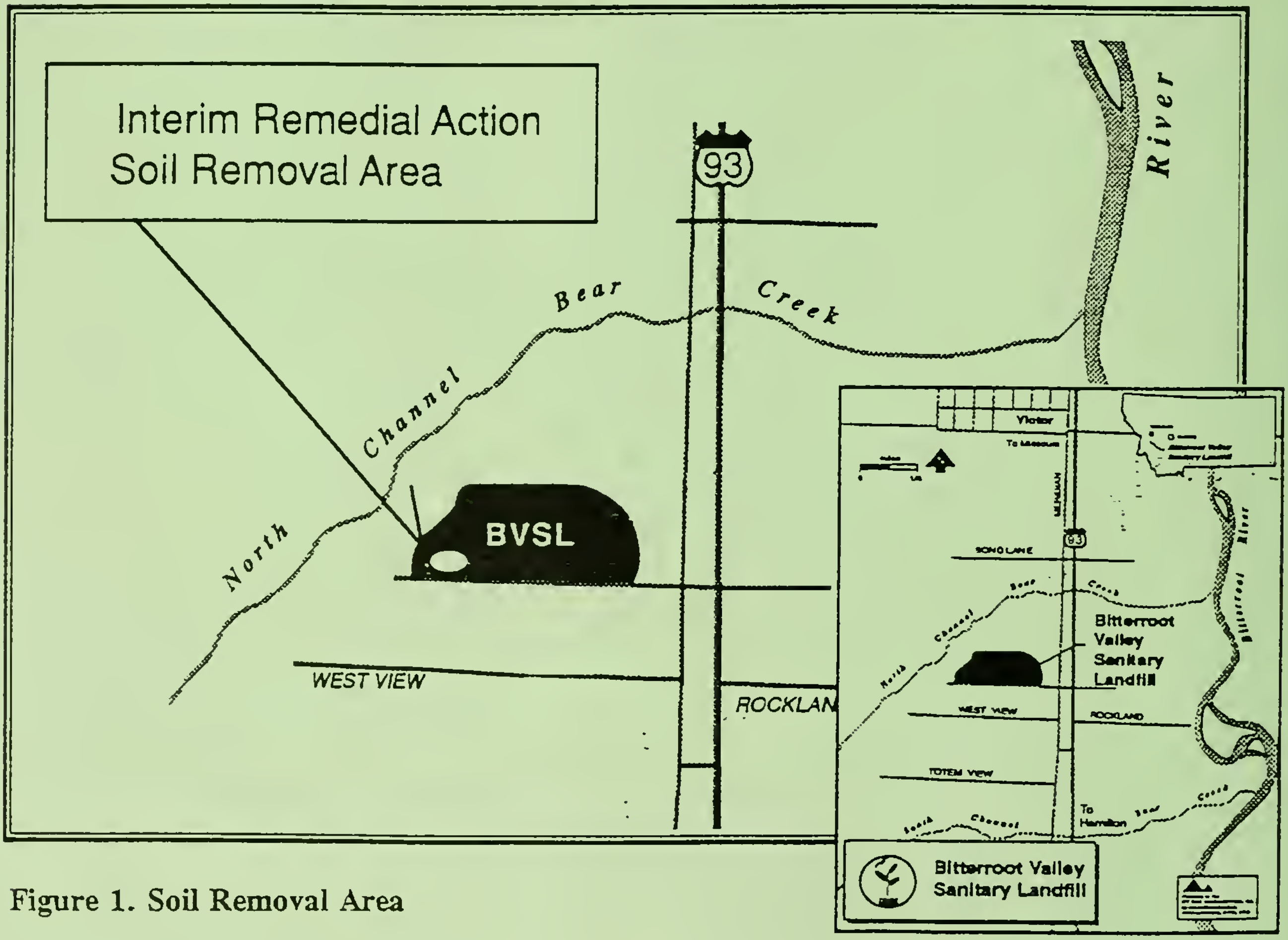

Figure 1. Soil Removal Area

SOIL REMOVAL AND TREATMENT

The first part of the Interim Remedial Action is to remove and treat contaminated soil in the area where the chemicals were disposed. Figure 1 shows the location of the soil removal area. The objective in removing the contaminated soil is to stop the chloroform and other chemicals in the soil from leaching into groundwater. Once the soil is removed and treated, a major source of on-going groundwater contamination will be eliminated.

Soil will be removed to a depth of approximately 60 feet. Excavated soil will be piled on a lined treatment area, worked with heavy equipment to allow evaporation of the chemicals, and returned to the pit. Because chloroform and other contaminants at the site are receptive to rapid treatment by evaporation, the contractor will be able to return the treated soil to the pit. However, the soil will be tested to confirm satisfactory treatment before being returned to the pit. After the soil is replaced in the pit, the site will be restored to its former condition. Reclamation will include replacing topsoil and reseeding the disturbed area.

The time needed for soil removal, treatment, and site restoration will depend on winter weather conditions. This part of the project is slated to be finished by mid-April of 1994.

GROUNDWATER REMOVAL AND TREATMENT

The highest concentrations of chloroform in contaminated groundwater have been found in the same area as the contaminated soil. The second part of the Interim Remedial Action includes pumping and treating this contaminated groundwater. It is anticipated this part of the Interim Remedial Action will decrease the amount of contaminated groundwater leaving the landfill and ultimately improve the quality of groundwater downgradient (east) of the landfill. Construction of the groundwater removal and treatment system will start after completion of the soil removal project.

The groundwater recovery system has four main components:

1) two pumping wells to remove the contaminated groundwater;
2) a water treatment system housed in a shed on-site;
3) an air emissions treatment system, operating in conjunction with the water treatment system; and
4) an on-site sprinkler system.

Two wells will be installed on the north side of Dinger Lane in the area where the contaminated soil has been removed. Pumps in these wells will move water to the treatment shed where it will be treated by an air stripper and carbon filters. An air stripper is designed to remove highly volatile contaminants from groundwater. After the water has been treated in the air stripper, it will be further treated by passing through two activated carbon filtration units that are designed to remove any remaining contaminants.

Gasses in the air stripper vent will be filtered to remove all volatile organic compounds released from the groundwater during treatment operations. Air emissions will be continuously monitored prior to release to prevent volatile organic compounds from entering the atmosphere.

The final component of the treatment system is the land application system. Following treatment the water will be sampled and analyzed by an approved laboratory to confirm there are no detectable concentrations of volatile organic compounds remaining in the treated water. The clean water will then be pumped to an on-site sprinkler system located west of the landfill.

The groundwater recovery system is anticipated to be operational in May 1994. It will operate for about six months during which time the effects of the interim remediation will be evaluated by sampling and testing the monitoring wells that have been installed in the area. The system will be shut down during the winter to prevent problems with frozen lines. Presently the plan is to operate the system for an additional six-month period from April to October, 1995 and then re-evaluate the effectiveness of the remediation.

AIR MONITORING & TREATMENT OF AIR EMISSIONS

To ensure that public health is protected during the Interim Remedial Actions, organic vapor emissions will be continuously monitored throughout soil and groundwater remediation. Air monitoring devices will be installed at the water pumps, the treatment shed, and at the site boundary. If monitoring indicates unacceptable levels of organic vapors are entering the atmosphere, operations will be halted.

In addition, air emissions generated during groundwater aeration will be filtered to remove any volatile organic compounds. Because of this filtering, no chlorinated organic compounds will be released to the environment during groundwater remediation. Filters will be regenerated by the manufacturer.

OTHER ACTIVITIES IN PROGRESS AT BVSL

- Huntingdon Chen-Northern will complete a Feasibility Study in 1994 discussing remediation options including replacement of the affected water supplies. The Feasibility Study will be submitted for public comment.

- MDHES will complete a Baseline Health and Ecological Risk Assessment to determine site-specific cleanup levels at the landfill in 1994. The Risk Assessment will be submitted for public comment.

- Huntington Chen-Northern will conduct semi-annual groundwater and surface water monitoring to evaluate the improvements to groundwater quality resulting from the Interim Remedial Actions.

SITE BACKGROUND

History of previous site investigations:

1987 - U.S. Environmental Protection Agency (EPA) conducts a screening site inspection at BVSL. Results of this investigation indicated on-site groundwater contamination with volatile organic compounds (VOCs). The compound found in highest concentration and frequency was chloroform, which is used as a solvent and extractant. Methylene chloride is a volatile organic compound also found at the site. It is used in aerosols, degreasers and paint removers.

1989 - Chen-Northern, a consultant for Bitterroot Valley Sanitary Landfill Inc., conducts two groundwater investigations between May and October. Results indicate on- and off-site groundwater contaminated with volatile organic compounds.

1990 - EPA conducts a listing site inspection in August to determine BVSL's potential to become a federal Superfund site. Results of this study indicate both on- and off-site contamination of groundwater and off-site contamination of creek sediments with volatile organic compounds.

1991 - MDHES sends official notice letters to BVSL Inc., Rocky Mountain Laboratory, and Ribi ImmunoChem Research Inc.

1991 - BVSL Inc. provides bottled water to affected residences. MDHES holds a public meeting in April to discuss results of EPA sampling and upcoming studies. Chen-Northern and MDHES conduct domestic well sampling in June and September. NIH begins a hydrogeologic investigation to determine the physical and geological parameters affecting contamination migration through soils and groundwater.

1993 - Hydrogeologic investigation completed, results of which are detailed in a MDHES newsletter. In summary, a source of contamination is determined to be the historic waste disposal pit described above. Chloroform and methylene chloride are the most pervasive contaminants on site. Contamination in the groundwater extends from the source area eastward, covering approximately 55 acres.

1993 - In March, MDHES conducts a public meeting to inform area residents of the results of the 1993 investigation and to discuss future activities at the site. MDHES contracts Camp, Dresser and McKee to perform a Baseline Health and Ecological Risk Assessment at the site.

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